

CHAPTER 110: AMBIENT AIR QUALITY STANDARDS

SUMMARY: This regulation establishes ambient air quality standards that are maximum levels of a particular pollutant that are permitted in the ambient air. This regulation also establishes ambient increments which define the maximum ambient increase of a particular pollutant that can be permitted for a given area depending on the classification of that area. Area classification is dealt with in another regulation. On November 23, 1982, the Board adopted Section 12 establishing ambient air quality standards for hexavalent chromium and total chromium until acceptable analytical procedures are available for hexavalent chromium.

1. Scope

A. These standards are applicable in all ambient air quality control regions of the State of Maine.

B. All ambient air quality standards are expressed at 25 degrees centigrade and 760 millimeters of mercury pressure.

2. Particulate Matter Ambient Air Quality Standards

A. The level of the 24-hour particulate matter ambient air quality standard is 150 micrograms per cubic meter, as measured in the ambient air as PM_{10} , based on methods contained in Appendix J of 40 CFR Part 50.

The standards are attained when the expected number of days per calendar year with a 24-hour average concentration above $150 \mu g/m^3$, as determined in accordance with Appendix K of 40 CFR Part 50, is equal to or less than one.

B. The level of the annual standard for particulate matter is 40 micrograms per cubic meter, as measured in the ambient air as PM_{10} , based on methods contained in Appendix J of 40 CFR Part 50.

The standards are attained when the expected annual arithmetic mean concentration, as determined in accordance with Appendix K of 40 CFR Part 50, is less than or equal to 40

ug/m³.

3. Sulfur Dioxide Ambient Air Quality Standards

- A. Sulfur dioxide concentration for any 3-hour period at any location shall not exceed 1150 micrograms per cubic meter, except once per year.
- B. Sulfur dioxide concentration for any 24-hour period at any location shall not exceed 230 micrograms per cubic meter, except once per year.
- C. The annual arithmetic mean of the 24-hour average sulfur dioxide concentrations at any location shall not exceed 57 micrograms per cubic meter.

4. Carbon Monoxide Ambient Air Quality Standards

- A. The maximum carbon monoxide concentration for any 8-hour period at any location shall be 10 milligrams per cubic meter, which standard may be exceeded once per year.
- B. The maximum carbon monoxide concentration for any 1-hour period at any location shall be 40 milligrams per cubic meter, which standard may be exceeded once per year.

5. Photochemical Oxidant Ambient Air Quality Standard

- A. The maximum photochemical oxidant concentration for any 1-hour period at any location shall be 160 micrograms per cubic meter, which standard may be exceeded once per year.

6. Hydrocarbon Ambient Air Quality Standard

- A. The maximum hydrocarbon concentration for any 3-hour period at any location shall be 160 micrograms per cubic meter, which standard may be exceeded once per year.

7. Nitrogen Dioxide Ambient Air Quality Standard

- A. The annual arithmetic mean of the 24-hour average nitrogen dioxide concentration at any location shall not exceed 100 micrograms per cubic meter.

8. Lead Ambient Air Quality Standard

A. The maximum 24-hour lead concentration at any location shall not exceed 1.5 micrograms per cubic meter except once per year.

9. Reserved

10. Establishment of Ambient Increments

A. In addition to the ambient air quality standards adopted by the Board and enacted as 38 M.R.S.A., 584-A, any Class I Region or part thereof within the State (including those federal lands designated by the Clean Air Act Amendments of 1977 shall be subject to a maximum allowable increase in concentration of PM_{10} , sulfur dioxide, and nitrogen dioxide over the baseline concentration of such pollutants. The maximum allowable increase for any period other than an annual period, shall not be exceeded more than once annually. Such maximum allowable increase shall consist of:

1. PM_{10} .

- a. An increase in the annual arithmetic mean at any location shall not exceed 4 micrograms per cubic meter.
- b. An increase in concentration for any 24-hour period at any location shall not exceed 8 micrograms per cubic meter.

2. Sulfur Dioxide

- a. An increase in the annual arithmetic mean at any location shall not exceed 2 micrograms per cubic meter.
- b. An increase in concentration for any 24-hour period at any location shall not exceed 5 micrograms per cubic meter.
- c. An increase in concentration for any three-hour period at any location shall not exceed 25 micrograms per cubic meter.

3. Nitrogen Dioxide

- a. An increase in the annual arithmetic mean at any location shall not exceed 2.5 micrograms per cubic meter.

B. In addition to the ambient air quality standards adopted by the Board and enacted as 38 M.R.S.A., 584-A, any Class II region or part thereof within the State shall be subject

to a maximum allowable increase in concentration of PM₁₀, sulfur dioxide and nitrogen dioxide over the baseline concentration of such pollutants. The maximum allowable increase for any period other than an annual period, shall not be exceeded more than once annually. Such maximum allowable increase shall consist of:

1. PM₁₀

- a. An increase in the annual arithmetic mean at any location shall not exceed 17 micrograms per cubic meter.
- b. An increase in concentration for any 24-hour period at any location shall not exceed 30 micrograms per cubic meter.

2. Sulfur dioxide

- a. An increase in the annual arithmetic mean at any location shall not exceed 20 micrograms per cubic meter.
- b. An increase in concentration for any 24-hour period at any location shall not exceed 91 micrograms per cubic meter.
- c. An increase in concentration for any three-hour period at any location shall not exceed 512 micrograms per cubic meter.

3. Nitrogen Dioxide

- a. An increase in the annual arithmetic mean at any location shall not exceed 25 micrograms per cubic meter.

C. In addition to the ambient air quality standards adopted by the Board and enacted as 38 M.R.S.A., 584-A, any Class III Region or part thereof within the State shall be subject to a maximum allowable increase in concentration of PM₁₀, sulfur dioxide and nitrogen dioxide over the baseline concentration of such pollutants. The maximum allowable increase for any period other than an annual period, shall not be exceeded more than once annually. Such maximum allowable increase shall consist of:

1. PM₁₀

- a. An increase in the annual arithmetic mean at any location shall not exceed 34 micrograms per cubic meter.
- b. An increase in concentration for any 24-hour period at any location shall not exceed 60 micrograms per cubic meter.

2. Sulfur dioxide

- a. An increase in the annual arithmetic mean at any location shall not exceed 40 micrograms per cubic meter.
- b. An increase in concentration for any 24-hour period at any location shall not exceed 182 micrograms per cubic meter.
- c. An increase in concentration for any three-hour period at any location shall not exceed 700 micrograms per cubic meter.

3. Nitrogen Dioxide

- a. An increase in the annual arithmetic mean at any location shall not exceed 50 micrograms per cubic meter.

11. Exclusions From The Increment

- A. Concentrations of such pollutant attributable to the increase in emissions from stationary sources which have converted from the use of petroleum products, or natural gas, or both, by reason of an order which is in effect under the provisions of sections 2 (a) and (b) of the Federal Energy Supply and Environmental Coordination Act of 1974 over the emissions from such sources before the effective date of such order;
- B. Concentrations of PM₁₀ attributable to the increase in emissions from construction or other temporary emission-related activities; and
- C. The increase in concentrations attributable to new sources outside the United States over the concentrations attributable to existing sources which are included in the baseline concentration.

12. Chromium

- A. Until such time that an analytical procedure for measuring hexavalent chromium in the ambient air is approved:
 - (1) The maximum 24-hour Total Chromium concentration at any location shall not exceed 0.3 micrograms per cubic meter, and;
 - (2) The annual geometric mean of the Total Chromium concentrations at any location shall not exceed 0.05 micrograms per cubic meter.

B. Subsequent to the establishment of an acceptable analytical procedure for measuring hexavalent chromium in the ambient air:

(1) The maximum 24-hour hexavalent chromium at any location shall not exceed the Minimum Detection Limit (MDL) of that procedure or a value of 1.0 nanogram per cubic meter whichever is greater.

AUTHORITY: 38 M.R.S.A., Section 584

EFFECTIVE DATE: October 22, 1971

Amended: May 7, 1979

Amended: October 14, 1980

Amended: January 24, 1983

Amended: August 9, 1988

Amended: October 25, 1989

Amended: June 13, 1990

Amended: August 6, 1996

BASIS STATEMENT : This regulation reflects those ambient air quality standards that the Board has determined are necessary to control air pollution. The Board examined the existing quality of the ambient air, the uses of land, the effectiveness of control and the federal standard for the same pollutant. These standards are set to preserve and enhance Maine's air quality.

BASIS STATEMENT FOR AMENDMENT OF JULY 23, 1980 : Studies have demonstrated that exposure to lead adversely affects human health. Lead is a listed criteria pollutant for which EPA recently promulgated an ambient air quality standard. The Board concluded that a stricter standard was necessary in order to provide an adequate margin of safety to protect public health.

BASIS STATEMENT FOR AMENDMENT OF NOVEMBER 23, 1982 : This regulation reflects those ambient air quality standards that the Board has determined are necessary to control air pollution. The Board examined the existing quality of the ambient air, the uses of land, the effectiveness of control and the federal standard for the same pollutant. These standards are set to preserve and enhance Maine's air quality. Section 12 was adopted to establish an ambient air quality standard for hexavalent chromium which was found to be a human respiratory carcinogen.

BASIS STATEMENT FOR AMENDMENT OF JULY 13, 1988 : The particulate matter ambient air quality standards have been revised to add a standard for particulate matter,

designated PM₁₀. A similar PM₁₀ standard has been adopted by the United States Environmental Protection Agency. PM₁₀ measures only that particulate matter less than 10 microns in diameter, which are the particles which can reach the lungs and result in serious health problems. The larger particles are primarily screened out by the nasal passages and the larynx. The existing Total Suspended Particulates (TSP) standard measures, in addition to the particles measured by the PM₁₀ standard, larger particles which EPA has determined do not pose significant health risks. After extensive study, EPA determined that PM₁₀ is a more appropriate measure of particulates in protecting human health than the existing TSP measure. Further, EPA did not find that there was sufficient scientific evidence to support retention of the TSP standard by EPA once a PM₁₀ standard was adopted by EPA. Because the Board does not have the authority to eliminate the TSP standard, the TSP ambient air standard will remain in the regulations until the Legislature has had an opportunity to modify or repeal the TSP standard.

BASIS STATEMENT FOR AMENDMENT OF SEPTEMBER 27, 1989 : This regulation has been amended to incorporate changes made by the 114th First Regular Session of the Maine Legislature. The language for the PM₁₀ standards has been changed for consistency with the national standards, and an annual PM₁₀ standard more stringent than the federal standard has been adopted. Furthermore, the Total Suspended Particulate standards have been eliminated. No comments on the proposed changes were received by the Department.

BASIS STATEMENT FOR AMENDMENTS OF JUNE 13, 1990 : This regulation was amended to implement a federally mandated nitrogen oxide (NO_x) increment program in the State of Maine. As part of the Prevention of Significant Deterioration Program, these amendments establish maximum increases in pollution concentrations allowed in an area above a determined baseline concentration. NO_x increment standards are established and the NO_x baseline concentration represents air quality existing in an area on February 8, 1988. The only comments received were from the United States Environmental Protection Agency which suggested minor changes for clarification.

BASIS STATEMENT FOR AMENDMENTS OF JUNE 24, 1996 : EPA changed the maximum allowable ambient increments for particulate matter from total suspended particulates (TSP) to fine particulates (PM₁₀) under the Prevention of Significant Deterioration (PSD) regulations. Federal regulations require the Maine DEP to revise this chapter to incorporate this increment change. The only comments received were from the United States Environmental Protection Agency which suggested minor changes for clarification.